

SEQUENCE LISTING

<110> Jones, Michael H.

<120> TRANSCRIPTIONAL REGULATORY FACTOR

<130> 06501-068001

<140> 09/698,295

<141> 2000-10-27

<150> PCT/JP99/02340

<151> 1999-04-30

<150> JAPAN 10/137631

<151> 1998-04-30

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Glu Glu Lys Asp Ile Pro Pro Leu Glu Phe Pro Lys Ser Ser Glu Asp
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Val Leu Arg Asn Phe Gly Thr Val Leu Arg Leu Ser Pro Phe Arg Phe
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Ala Glu Met His Val Val Leu Leu Lys Ala Val Leu Arg Glu Glu Asp
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Thr Ser Asn Thr Thr Phe Gly Pro Ala Asp Leu Lys Asp Ser Val Asn
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Ser Thr Leu Tyr Phe Ile Asp Gly Met Thr Trp Pro Glu Val Leu Arg
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Val Tyr Cys Glu Ser Asp Lys Glu Tyr His His Val Leu Pro Tyr Gln
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Glu Ala Glu Asp Tyr Pro Tyr Gly Pro Val Glu Asn Lys Ile Lys Val
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Leu Gln Phe Leu Val Asp Gln Phe Leu Thr Thr Asn Ile Ala Arg Glu

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Tyr	His	Leu	Glu	Cys	Val	Lys	Pro	Pro	Leu	Glu	Glu	Val	Pro	Glu	Asp
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Pro	Ile	Gly	Tyr	Asp	Arg	Ser	Arg	Arg	Lys	Tyr	Trp	Phe	Leu	Asn	Arg
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Arg	Leu	Ile	Ile	Glu	Glu	Asp	Thr	Glu	Asn	Glu	Asn	Glu	Lys	Lys	Ile
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Ile	Leu	Glu	Ser	Ile	Arg	Ala	Lys	Lys	Gly	Asp	Ile	Asp	Asn	Val	Lys
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Ala	Ala	Ala	Ala	His	Glu	Ala	Asn	Lys	Leu	Phe	Lys	Glu	Gly	Lys	Glu
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Val	Leu	Val	Val	Asn	Ser	Gln	Gly	Glu	Ile	Ser	Arg	Leu	Ser	Thr	Lys
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Lys Glu Val Ile Met Lys Gly Asn Ile Asn Asn Tyr Phe Lys Leu Gly
 690 695 700
 Gln Glu Gly Lys Tyr Arg Val Tyr His Asn Gln Tyr Ser Thr Asn Ser
 705 710 715 720
 Phe Ala Leu Asn Lys His Gln His Arg Glu Asp His Asp Lys Arg Arg
 725 730 735
 His Leu Ala His Lys Phe Cys Leu Thr Pro Ala Gly Glu Phe Lys Trp
 740 745 750
 Asn Gly Ser Val His Gly Ser Lys Val Leu Thr Ile Ser Thr Leu Arg
 755 760 765
 Leu Thr Ile Thr Gln Leu Glu Asn Asn Ile Pro Ser Ser Phe Phe His
 770 775 780
 Pro Asn Trp Ala Ser His Arg Ala Asn Trp Ile Lys Ala Val Gln Met
 785 790 795 800
 Cys Ser Lys Pro Arg Glu Phe Ala Leu Ala Leu Ala Ile Leu Glu Cys
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 Ala Val Lys Pro Val Val Met Leu Pro Ile Trp Arg Glu Phe Leu Gly
 820 825 830
 His Thr Arg Leu His Arg Met Thr Ser Ile Glu Arg Glu Glu Lys Glu
 835 840 845
 Lys Val Lys Lys Lys Glu Lys Lys Gln Glu Glu Glu Glu Thr Met Gln
 850 855 860
 Gln Ala Thr Trp Val Lys Tyr Thr Phe Pro Val Lys His Gln Val Trp
 865 870 875 880
 Lys Gln Lys Gly Glu Glu Tyr Arg Val Thr Gly Tyr Gly Gly Trp Ser
 885 890 895
 Trp Ile Ser Lys Thr His Val Tyr Arg Phe Val Pro Lys Leu Pro Gly
 900 905 910
 Asn Thr Asn Val Asn Tyr Arg Lys Ser Leu Glu Gly Thr Lys Asn Asn
 915 920 925
 Met Asp Glu Asn Met Asp Glu Ser Asp Lys Arg Lys Cys Ser Arg Ser
 930 935 940
 Pro Lys Lys Ile Lys Ile Glu Pro Asp Ser Glu Lys Asp Glu Val Lys
 945 950 955 960
 Gly Ser Asp Ala Ala Lys Gly Ala Asp Gln Asn Glu Met Asp Ile Ser
 965 970 975
 Lys Ile Thr Glu Lys Lys Asp Gln Asp Val Lys Glu Leu Leu Asp Ser
 980 985 990
 Asp Ser Asp Lys Pro Cys Lys Glu Glu Pro Met Glu Val Asp Asp Asp
 995 1000 1005
 Met Lys Thr Glu Ser His Val Asn Cys Gln Glu Ser Ser Gln Val Asp
 1010 1015 1020
 Val Val Asn Val Ser Glu Gly Phe His Leu Arg Thr Ser Tyr Lys Lys
 1025 1030 1035 1040
 Lys Thr Lys Ser Ser Lys Leu Asp Gly Leu Leu Glu Arg Arg Ile Lys
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 Gln Phe Thr Leu Glu Glu Lys Gln Arg Leu Glu Lys Ile Lys Leu Glu
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 Gly Gly Ile Lys Gly Ile Gly Lys Thr Ser Thr Asn Ser Ser Lys Asn
 1075 1080 1085
 Leu Ser Glu Ser Pro Val Ile Thr Lys Ala Lys Glu Gly Cys Gln Ser
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 Glu Asp Leu Ile Gln Gly Cys Ser Gln Ser Asp Ser Ser Val Leu Arg
 1125 1130 1135
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 Thr Thr Val Thr Lys Leu Ser Thr Pro Ser Thr Gly Gly Ser Val Asp
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 Ile Ile Ser Val Lys Glu Gln Ser Lys Thr Val Val Thr Thr Thr Val
 1635 1640 1645
 Thr Asp Ser Leu Thr Thr Thr Gly Gly Thr Leu Val Thr Ser Met Thr
 1650 1655 1660
 Val Ser Lys Glu Tyr Ser Thr Arg Asp Lys Val Lys Leu Met Lys Phe
 1665 1670 1675 1680
 Ser Arg Pro Lys Lys Thr Arg Ser Gly Thr Ala Leu Pro Ser Tyr Arg
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 Lys Phe Val Thr Lys Ser Thr Lys Lys Ser Ile Phe Val Leu Pro Asn
 1700 1705 1710
 Asp Asp Leu Lys Lys Leu Ala Arg Lys Gly Gly Ile Arg Glu Val Pro
 1715 1720 1725
 Tyr Phe Asn Tyr Asn Ala Lys Pro Ala Leu Asp Ile Trp Pro Tyr Pro
 1730 1735 1740
 Ser Pro Arg Pro Thr Phe Gly Ile Thr Trp Arg Tyr Arg Leu Gln Thr
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 Val Lys Ser Leu Ala Gly Val Ser Leu Met Leu Arg Leu Leu Trp Ala
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 Ser Leu Arg Trp Asp Asp Met Ala Ala Lys Val Pro Pro Gly Gly Gly
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 Ser Thr Arg Thr Glu Thr Ser Glu Thr Glu Ile Thr Thr Thr Glu Ile
 1795 1800 1805
 Ile Lys Arg Arg Asp Val Gly Pro Tyr Gly Ile Arg Phe Glu Tyr Cys
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 Ile Arg Lys Ile Ile Cys Pro Ile Gly Val Pro Glu Thr Pro Lys Glu
 1825 1830 1835 1840
 Thr Pro Thr Pro Gln Arg Lys Gly Leu Arg Ser Ser Ala Leu Arg Pro
 1845 1850 1855
 Lys Arg Pro Glu Thr Pro Lys Gln Thr Gly Pro Val Ile Ile Glu Thr
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 Trp Val Ala Glu Glu Glu Leu Glu Leu Trp Glu Ile Arg Ala Phe Ala
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 1890 1895 1900
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 1940 1945 1950
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 1955 1960 1965
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 1970 1975 1980
 Asn Ser Gly Val Val Gln Val Gln Gln Lys Val Leu Gly Ile Ile Pro
 1985 1990 1995 2000
 Ser Ser Thr Gly Thr Ser Gln Gln Thr Phe Thr Ser Phe Gln Pro Arg
 2005 2010 2015
 Thr Ala Thr Val Thr Ile Arg Pro Asn Thr Ser Gly Ser Gly Gly Thr
 2020 2025 2030
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 2035 2040 2045
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Gln Gly Gln Val Lys Leu Thr Met Ala Gln Leu Thr Gln Leu Thr Gln		2125
	2130	2135
Gly His Gly Gly Asn Gln Gly Leu Thr Val Val Ile Gln Gly Gln Gly		2140
2145	2150	2155
Gln Thr Thr Gly Gln Leu Gln Leu Ile Pro Gln Gly Val Thr Val Leu		2160
	2165	2170
Pro Gly Pro Gly Gln Gln Leu Met Gln Ala Ala Met Pro Asn Gly Thr		2175
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Val Gln Arg Phe Leu Phe Thr Pro Leu Ala Thr Thr Ala Thr Thr Ala		2190
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 Thr Pro Ala Glu Arg Glu Glu Asn Gln Arg Met Ile Val Cys Asn Gln
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 Val Met Lys Tyr Ile Leu Asp Lys Ile Asp Lys Glu Glu Lys Gln Ala
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 Ala Lys Lys Arg Lys Arg Glu Glu Ser Val Glu Gln Lys Arg Ser Lys
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 2625 2630 2635 2640
 Glu Lys Asp Leu Met Gln Leu Ala Gln Ala Thr Ala Val Ala Ala Pro
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 Cys Pro Pro Val Thr Pro Val Leu Pro Ala Pro Pro Ala Pro Pro Pro
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 Ser Pro Pro Pro Pro Gly Val Gln His Thr Gly Leu Leu Ser Thr
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 Pro Thr Leu Pro Val Ala Ser Gln Lys Arg Lys Arg Glu Glu Glu Lys
 2690 2695 2700
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 Lys Glu Thr Lys Lys Asp Thr Lys Leu Tyr Cys Ile Cys Lys Thr Pro
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 Tyr Asp Glu Ser Lys Phe Tyr Ile Gly Cys Asp Arg Cys Gln Asn Trp
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 Tyr His Gly Arg Cys Val Gly Ile Leu Gln Ser Glu Ala Glu Leu Ile
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 Asp Glu Tyr Val Cys Pro Gln Cys Gln Ser Thr Glu Asp Ala Met Thr
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 Lys Leu Thr Glu Phe Val Ala Asp Met Thr Lys Ile Phe Asp Asn Cys
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                Met Val Ser Glu Glu Glu Glu Glu Glu Asp Gly
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gac gcc gag gag acc cag gat tct gag gac gac gag gag gat gag atg      339
Asp Ala Glu Glu Thr Gln Asp Ser Glu Asp Asp Glu Glu Asp Glu Met
                15             20             25

gaa gag gac gac gat gac tcc gat tat ccg gag gag atg gaa gac gac      387
Glu Glu Asp Asp Asp Asp Ser Asp Tyr Pro Glu Glu Met Glu Asp Asp
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gac gac gac gcc agt tac tgc acg gaa agc agc ttc agg agc cat agt      435
Asp Asp Asp Ala Ser Tyr Cys Thr Glu Ser Ser Phe Arg Ser His Ser
                45             50             55

acc tac agc agc act cca ggt agg cga aaa cca aga gta cat cgg cct      483
Thr Tyr Ser Ser Thr Pro Gly Arg Arg Lys Pro Arg Val His Arg Pro
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cgt tct cct ata ttg gaa gaa aaa gac atc ccg ccc ctt gaa ttt ccc      531
Arg Ser Pro Ile Leu Glu Glu Lys Asp Ile Pro Pro Leu Glu Phe Pro
                80             85             90

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Lys Ser Ser Glu Asp Leu Met Val Pro Asn Glu His Ile Met Asn Val
                95             100             105

att gcc att tac gag gta ctg cgg aac ttt ggc act gtt ttg aga tta      627
Ile Ala Ile Tyr Glu Val Leu Arg Asn Phe Gly Thr Val Leu Arg Leu
                110             115             120

tct cct ttt cgc ttt gag gac ttt tgt gca gct ctg gtg agc caa gag      675
Ser Pro Phe Arg Phe Glu Asp Phe Cys Ala Ala Leu Val Ser Gln Glu
                125             130             135

cag tgc aca ctc atg gca gag atg cat gtt gtg ctt ttg aaa gca gtt      723
Gln Cys Thr Leu Met Ala Glu Met His Val Val Leu Leu Lys Ala Val
                140             145             150             155

ctg cgt gaa gaa gac act tcc aat act acc ttt gga cct gct gat ctg      771
Leu Arg Glu Glu Asp Thr Ser Asn Thr Thr Phe Gly Pro Ala Asp Leu
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aaa gat agc gtt aat tcc aca ctg tat ttc ata gat ggg atg acg tgg      819
Lys Asp Ser Val Asn Ser Thr Leu Tyr Phe Ile Asp Gly Met Thr Trp
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cca gag gtg ctg cgg gtg tac tgt gag agt gat aag gag tac cat cac      867

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		190					195					200				
gtt	ctt	cct	tac	caa	gag	gca	gag	gac	tac	cca	tat	gga	cca	gta	gag	915
Val	Leu	Pro	Tyr	Gln	Glu	Ala	Glu	Asp	Tyr	Pro	Tyr	Gly	Pro	Val	Glu	
	205					210					215					
aac	aag	atc	aaa	gtt	cta	cag	ttt	cta	gtc	gat	cag	ttt	ctt	aca	aca	963
Asn	Lys	Ile	Lys	Val	Leu	Gln	Phe	Leu	Val	Asp	Gln	Phe	Leu	Thr	Thr	
220					225					230					235	
aat	att	gct	cga	gag	gaa	ttg	atg	tct	gaa	ggg	gtg	ata	cag	tat	gat	1011
Asn	Ile	Ala	Arg	Glu	Glu	Leu	Met	Ser	Glu	Gly	Val	Ile	Gln	Tyr	Asp	
				240					245					250		
gac	cat	tgt	agg	gtt	tgt	cac	aaa	ctt	ggg	gat	ttg	ctt	tgc	tgt	gag	1059
Asp	His	Cys	Arg	Val	Cys	His	Lys	Leu	Gly	Asp	Leu	Leu	Cys	Cys	Glu	
			255					260					265			
aca	tgt	tca	gca	gta	tac	cat	ttg	gaa	tgt	gtg	aag	cca	cct	ctt	gag	1107
Thr	Cys	Ser	Ala	Val	Tyr	His	Leu	Glu	Cys	Val	Lys	Pro	Pro	Leu	Glu	
	270						275					280				
gag	gtg	cca	gag	gac	gag	tgg	cag	tgt	gaa	gtc	tgt	gta	gca	cac	aag	1155
Glu	Val	Pro	Glu	Asp	Glu	Trp	Gln	Cys	Glu	Val	Cys	Val	Ala	His	Lys	
	285					290					295					
gtg	cct	ggg	gtg	act	gac	tgt	gtt	gct	gaa	atc	caa	aaa	aat	aaa	cca	1203
Val	Pro	Gly	Val	Thr	Asp	Cys	Val	Ala	Glu	Ile	Gln	Lys	Asn	Lys	Pro	
300					305					310					315	
tat	att	cga	cat	gaa	cct	att	gga	tat	gat	aga	agt	cgg	agg	aaa	tac	1251
Tyr	Ile	Arg	His	Glu	Pro	Ile	Gly	Tyr	Asp	Arg	Ser	Arg	Arg	Lys	Tyr	
				320					325					330		
tgg	ttc	ttg	aac	tga	aga	ctc	ata	ata	gaa	gaa	gat	aca	gaa	aat	gaa	1299
Trp	Phe	Leu	Asn	Arg	Arg	Leu	Ile	Ile	Glu	Glu	Asp	Thr	Glu	Asn	Glu	
			335					340					345			
aat	gaa	aag	aaa	att	tgg	tat	tac	agc	aca	aag	gtc	caa	ctt	gca	gaa	1347
Asn	Glu	Lys	Lys	Ile	Trp	Tyr	Tyr	Ser	Thr	Lys	Val	Gln	Leu	Ala	Glu	
		350					355					360				
tta	att	gac	tgt	cta	gac	aaa	gat	tat	tgg	gaa	gca	gaa	ctc	tgc	aaa	1395
Leu	Ile	Asp	Cys	Leu	Asp	Lys	Asp	Tyr	Trp	Glu	Ala	Glu	Leu	Cys	Lys	
	365					370					375					
att	cta	gaa	gaa	atg	cgt	gaa	gaa	atc	cac	cga	cac	atg	gac	ata	act	1443
Ile	Leu	Glu	Glu	Met	Arg	Glu	Glu	Ile	His	Arg	His	Met	Asp	Ile	Thr	
380					385					390					395	
gaa	gac	ctg	acc	aat	aag	gct	cgg	ggc	agt	aac	aaa	tcc	ttt	ctg	gcg	1491
Glu	Asp	Leu	Thr	Asn	Lys	Ala	Arg	Gly	Ser	Asn	Lys	Ser	Phe	Leu	Ala	
				400					405					410		
gca	gct	aat	gaa	gaa	att	ttg	gaa	tcc	ata	aga	gcc	aaa	aag	gga	gac	1539
Ala	Ala	Asn	Glu	Glu	Ile	Leu	Glu	Ser	Ile	Arg	Ala	Lys	Lys	Gly	Asp	

415	420	425	
att gat aat gtt aaa agc cca gaa gaa aca gaa aaa gac aag aat gag Ile Asp Asn Val Lys Ser Pro Glu Glu Thr Glu Lys Asp Lys Asn Glu 430 435 440			1587
act gag aat gac tct aaa gat gct gag aaa aac aga gaa gaa ttt gaa Thr Glu Asn Asp Ser Lys Asp Ala Glu Lys Asn Arg Glu Glu Phe Glu 445 450 455			1635
gac cag tcc ctt gaa aaa gac agt gac gac aaa aca cca gat gat gac Asp Gln Ser Leu Glu Lys Asp Ser Asp Asp Lys Thr Pro Asp Asp Asp 460 465 470 475			1683
cct gag caa gga aaa tct gag gag cca aca gaa gtt ggg gat aaa ggt Pro Glu Gln Gly Lys Ser Glu Glu Pro Thr Glu Val Gly Asp Lys Gly 480 485 490			1731
aac tct gtg tca gca aat ctt ggc gac aac aca aca aat gca act tca Asn Ser Val Ser Ala Asn Leu Gly Asp Asn Thr Thr Asn Ala Thr Ser 495 500 505			1779
gaa gag act agt ccc tct gaa ggg agg agc cct gtg ggg tgt ctc tca Glu Glu Thr Ser Pro Ser Glu Gly Arg Ser Pro Val Gly Cys Leu Ser 510 515 520			1827
gaa acc ccc gat agc agc aac atg gca gag aag aag gtg gca tct gag Glu Thr Pro Asp Ser Ser Asn Met Ala Glu Lys Lys Val Ala Ser Glu 525 530 535			1875
ctc ccc cag gat gtg cca gaa gaa cct aac aag aca tgt gag agc agt Leu Pro Gln Asp Val Pro Glu Glu Pro Asn Lys Thr Cys Glu Ser Ser 540 545 550 555			1923
aac act agt gct acc act acc tcc atc cag cct aat ctg gaa aac agt Asn Thr Ser Ala Thr Thr Thr Ser Ile Gln Pro Asn Leu Glu Asn Ser 560 565 570			1971
aac agc agc agt gaa cta aat tct tcc cag agt gaa tct gct aag gca Asn Ser Ser Ser Glu Leu Asn Ser Ser Gln Ser Glu Ser Ala Lys Ala 575 580 585			2019
gct gat gat cct gaa aat gga gaa aga gaa tct cat aca cct gtc tct Ala Asp Asp Pro Glu Asn Gly Glu Arg Glu Ser His Thr Pro Val Ser 590 595 600			2067
att cag gaa gag ata gta ggt gat ttc aca tcg gag aag tcc acc ggg Ile Gln Glu Glu Ile Val Gly Asp Phe Thr Ser Glu Lys Ser Thr Gly 605 610 615			2115
gag cta agt gaa tct cct gga gct gga aaa gga gca tct ggc tca act Glu Leu Ser Glu Ser Pro Gly Ala Gly Lys Gly Ala Ser Gly Ser Thr 620 625 630 635			2163
cga atc atc acc aga ttg cgg aat cca gat agc aaa ctt agt cag ctg Arg Ile Ile Thr Arg Leu Arg Asn Pro Asp Ser Lys Leu Ser Gln Leu 640 645 650			2211

aag agc cag cag gtg gca gcc gct gca cat gaa gca aat aaa tta ttt Lys Ser Gln Gln Val Ala Ala Ala His Glu Ala Asn Lys Leu Phe 655 660 665	2259
aag gag ggc aaa gag gta ctg gta gtt aac tct caa gga gaa att tca Lys Glu Gly Lys Glu Val Leu Val Val Asn Ser Gln Gly Glu Ile Ser 670 675 680	2307
cgg ttg agc acc aaa aag gaa gtg atc atg aaa gga aat atc aac aat Arg Leu Ser Thr Lys Lys Glu Val Ile Met Lys Gly Asn Ile Asn Asn 685 690 695	2355
tat ttt aaa ttg ggt caa gaa ggg aag tat cgc gtc tac cac aat caa Tyr Phe Lys Leu Gly Gln Glu Gly Lys Tyr Arg Val Tyr His Asn Gln 700 705 710 715	2403
tac tcc acc aat tca ttt gct ttg aat aag cac cag cac aga gaa gac Tyr Ser Thr Asn Ser Phe Ala Leu Asn Lys His Gln His Arg Glu Asp 720 725 730	2451
cat gat aag aga agg cat ctt gca cat aag ttc tgt ctg act cca gca His Asp Lys Arg Arg His Leu Ala His Lys Phe Cys Leu Thr Pro Ala 735 740 745	2499
gga gag ttc aaa tgg aac ggt tct gtc cat ggg tcc aaa gtt ctt acc Gly Glu Phe Lys Trp Asn Gly Ser Val His Gly Ser Lys Val Leu Thr 750 755 760	2547
ata tct act ctg aga ctg act atc acc caa tta gaa aac aac atc cct Ile Ser Thr Leu Arg Leu Thr Ile Thr Gln Leu Glu Asn Asn Ile Pro 765 770 775	2595
tca tcc ttt ttt cat ccc aac tgg gca tca cat agg gca aat tgg atc Ser Ser Phe Phe His Pro Asn Trp Ala Ser His Arg Ala Asn Trp Ile 780 785 790 795	2643
aag gca gtt cag atg tgt agc aaa ccc aga gaa ttt gca ttg gct tta Lys Ala Val Gln Met Cys Ser Lys Pro Arg Glu Phe Ala Leu Ala Leu 800 805 810	2691
gcc att ttg gag tgt gca gtt aaa cca gtt gtg atg cta cca ata tgg Ala Ile Leu Glu Cys Ala Val Lys Pro Val Val Met Leu Pro Ile Trp 815 820 825	2739
cga gaa ttt tta gga cat acc agg tta cac cgg atg aca tca att gaa Arg Glu Phe Leu Gly His Thr Arg Leu His Arg Met Thr Ser Ile Glu 830 835 840	2787
aga gaa gaa aag gag aaa gtc aaa aaa gag aag aaa cag gaa gaa Arg Glu Glu Lys Glu Lys Val Lys Lys Lys Glu Lys Lys Gln Glu Glu 845 850 855	2835
gaa gaa acg atg cag caa gcg aca tgg gta aaa tac aca ttt cca gtt Glu Glu Thr Met Gln Gln Ala Thr Trp Val Lys Tyr Thr Phe Pro Val 860 865 870 875	2883

aag cat cag gtt tgg aaa caa aaa ggt gaa gag tac aga gtg aca gga Lys His Gln Val Trp Lys Gln Lys Gly Glu Glu Tyr Arg Val Thr Gly 880 885 890	2931
tat ggt ggt tgg agc tgg att agt aaa act cat gtt tat agg ttt gtt Tyr Gly Gly Trp Ser Trp Ile Ser Lys Thr His Val Tyr Arg Phe Val 895 900 905	2979
cct aaa ttg cca ggc aat act aat gtg aat tac aga aag tcg tta gaa Pro Lys Leu Pro Gly Asn Thr Asn Val Asn Tyr Arg Lys Ser Leu Glu 910 915 920	3027
gga acc aaa aat aat atg gat gaa aat atg gat gag tca gat aaa aga Gly Thr Lys Asn Asn Met Asp Glu Asn Met Asp Glu Ser Asp Lys Arg 925 930 935	3075
aaa tgt tca cga agt cca aaa aaa ata aaa ata gag cct gat tct gaa Lys Cys Ser Arg Ser Pro Lys Lys Ile Lys Ile Glu Pro Asp Ser Glu 940 945 950 955	3123
aaa gat gag gta aaa ggt tca gat gct gca aaa gga gca gac caa aat Lys Asp Glu Val Lys Gly Ser Asp Ala Ala Lys Gly Ala Asp Gln Asn 960 965 970	3171
gaa atg gat atc tca aag att act gag aag aag gac caa gat gtg aag Glu Met Asp Ile Ser Lys Ile Thr Glu Lys Lys Asp Gln Asp Val Lys 975 980 985	3219
gag ctc tta gat tct gac agt gat aaa ccc tgc aag gaa gaa cca atg Glu Leu Leu Asp Ser Asp Ser Asp Lys Pro Cys Lys Glu Glu Pro Met 990 995 1000	3267
gaa gta gac gat gac atg aaa aca gag tca cat gta aat tgt cag gag Glu Val Asp Asp Asp Met Lys Thr Glu Ser His Val Asn Cys Gln Glu 1005 1010 1015	3315
agt tct caa gta gat gtg gtc aat gtt agt gag ggt ttt cat cta agg Ser Ser Gln Val Asp Val Val Asn Val Ser Glu Gly Phe His Leu Arg 1020 1025 1030 1035	3363
act agt tac aaa aag aaa aca aaa tca tcc aaa cta gat gga ctt ctt Thr Ser Tyr Lys Lys Lys Thr Lys Ser Ser Lys Leu Asp Gly Leu Leu 1040 1045 1050	3411
gaa agg aga att aaa cag ttt aca ctg gaa gaa aaa cag cga ctc gaa Glu Arg Arg Ile Lys Gln Phe Thr Leu Glu Glu Lys Gln Arg Leu Glu 1055 1060 1065	3459
aaa atc aag ttg gag ggt gga att aag ggt ata gga aag act tct aca Lys Ile Lys Leu Glu Gly Gly Ile Lys Gly Ile Gly Lys Thr Ser Thr 1070 1075 1080	3507
aat tct tca aaa aat ctc tct gaa tca cca gta ata acg aaa gca aaa Asn Ser Ser Lys Asn Leu Ser Glu Ser Pro Val Ile Thr Lys Ala Lys 1085 1090 1095	3555
gaa ggg tgt cag agt gac tcg atg aga caa gaa cag agc cca aat gca	3603

Glu Gly Cys Gln Ser	Asp Ser Met Arg Gln Glu Ser Pro Asn Ala	
1100	1105	1110 1115
aat aat gat caa cct gag gac ttg att cag gga tgt tca caa agt gat	3651	
Asn Asn Asp Gln Pro Glu Asp Leu Ile Gln Gly Cys Ser Gln Ser Asp		
1120	1125	1130
tcc tca gtt ctt aga atg agt gat cct agt cat acc aca aac aaa ctt	3699	
Ser Ser Val Leu Arg Met Ser Asp Pro Ser His Thr Thr Asn Lys Leu		
1135	1140	1145
tat cca aaa gat cga gtg tta gat gat gtc tcc att cgg agc cca gaa	3747	
Tyr Pro Lys Asp Arg Val Leu Asp Asp Val Ser Ile Arg Ser Pro Glu		
1150	1155	1160
aca aaa tgt ccg aaa caa aat tcc att gaa aat gac ata gaa gaa aaa	3795	
Thr Lys Cys Pro Lys Gln Asn Ser Ile Glu Asn Asp Ile Glu Glu Lys		
1165	1170	1175
gtc tct gac ctt gcc agt aga ggc cag gaa ccc act aag agt aaa acc	3843	
Val Ser Asp Leu Ala Ser Arg Gly Gln Glu Pro Thr Lys Ser Lys Thr		
1180	1185	1190 1195
aaa gga aat gat ttt ttc atc gat gac tct aaa cta gcc agt gca gat	3891	
Lys Gly Asn Asp Phe Phe Ile Asp Asp Ser Lys Leu Ala Ser Ala Asp		
1200	1205	1210
gat att ggt act ttg atc tgt aag aac aaa aaa ccg ctc ata cag gag	3939	
Asp Ile Gly Thr Leu Ile Cys Lys Asn Lys Lys Pro Leu Ile Gln Glu		
1215	1220	1225
gaa agt gac acc att gtt tct tct tcc aag agt gct tta cat tca tca	3987	
Glu Ser Asp Thr Ile Val Ser Ser Ser Lys Ser Ala Leu His Ser Ser		
1230	1235	1240
gtg cct aaa agt acc aat gac aga gat gcc aca cct ctg tca aga gca	4035	
Val Pro Lys Ser Thr Asn Asp Arg Asp Ala Thr Pro Leu Ser Arg Ala		
1245	1250	1255
atg gac ttt gaa gga aaa ctg gga tgt gac tct gaa tct aat agc act	4083	
Met Asp Phe Glu Gly Lys Leu Gly Cys Asp Ser Glu Ser Asn Ser Thr		
1260	1265	1270 1275
ttg gaa aat agt tct gat acc gtg tct att cag gat agc agt gaa gaa	4131	
Leu Glu Asn Ser Ser Asp Thr Val Ser Ile Gln Asp Ser Ser Glu Glu		
1280	1285	1290
gat atg att gtt cag aat agc aat gaa agc att tct gaa cag ttc aga	4179	
Asp Met Ile Val Gln Asn Ser Asn Glu Ser Ile Ser Glu Gln Phe Arg		
1295	1300	1305
act cga gaa caa gat gtt gaa gtc ttg gag ccg tta aag tgt gag ttg	4227	
Thr Arg Glu Gln Asp Val Glu Val Leu Glu Pro Leu Lys Cys Glu Leu		
1310	1315	1320
gtt tct ggt gag tcc act gga aac tgt gag gac agg ctg ccg gtc aag	4275	
Val Ser Gly Glu Ser Thr Gly Asn Cys Glu Asp Arg Leu Pro Val Lys		

1325	1330	1335	
ggg act gaa gca aat ggt aaa aaa cca agt cag cag aag aaa tta gag			4323
Gly Thr Glu Ala Asn Gly Lys Lys Pro Ser Gln Gln Lys Lys Leu Glu			
1340	1345	1350	1355
gag aga cca gtt aat aaa tgt agt gat caa ata aag cta aaa aat acc			4371
Glu Arg Pro Val Asn Lys Cys Ser Asp Gln Ile Lys Leu Lys Asn Thr			
	1360	1365	1370
act gac aaa aag aat aat gaa aat cga gag tct gaa aag aaa gga cag			4419
Thr Asp Lys Lys Asn Asn Glu Asn Arg Glu Ser Glu Lys Lys Gly Gln			
	1375	1380	1385
aga aca agt aca ttt caa ata aat gga aaa gat aat aaa ccc aaa ata			4467
Arg Thr Ser Thr Phe Gln Ile Asn Gly Lys Asp Asn Lys Pro Lys Ile			
	1390	1395	1400
tat ttg aaa ggt gaa tgc ttg aaa gaa att tct gag agt aga gta gta			4515
Tyr Leu Lys Gly Glu Cys Leu Lys Glu Ile Ser Glu Ser Arg Val Val			
	1405	1410	1415
agt ggt aat gtt gaa cca aag gtt aat aat ata aat aaa ata atc cct			4563
Ser Gly Asn Val Glu Pro Lys Val Asn Asn Ile Asn Lys Ile Ile Pro			
	1420	1425	1430
gag aat gat att aaa tca ttg act gtt aaa gaa tct gct ata agg cca			4611
Glu Asn Asp Ile Lys Ser Leu Thr Val Lys Glu Ser Ala Ile Arg Pro			
	1440	1445	1450
ttc att aat ggt gat gtc atc atg gaa gat ttt aat gaa aga aac agc			4659
Phe Ile Asn Gly Asp Val Ile Met Glu Asp Phe Asn Glu Arg Asn Ser			
	1455	1460	1465
tcc gaa aca aaa tcg cat ttg ctg agt tct tca gat gct gaa ggt aac			4707
Ser Glu Thr Lys Ser His Leu Leu Ser Ser Ser Asp Ala Glu Gly Asn			
	1470	1475	1480
tac cga gat agc ctt gag acc ctg cca tca acc aaa gag tct gac agt			4755
Tyr Arg Asp Ser Leu Glu Thr Leu Pro Ser Thr Lys Glu Ser Asp Ser			
	1485	1490	1495
aca cag acg acc aca ccc tca gca tct tgt cca gaa agc aat tca gtt			4803
Thr Gln Thr Thr Thr Pro Ser Ala Ser Cys Pro Glu Ser Asn Ser Val			
	1500	1505	1510
aat cag gta gaa gat atg gaa ata gaa acc tca gaa gtt aag aaa gtt			4851
Asn Gln Val Glu Asp Met Glu Ile Glu Thr Ser Glu Val Lys Lys Val			
	1520	1525	1530
act tca tca cct att act tct gaa gag gaa tct aat ctc agt aat gac			4899
Thr Ser Ser Pro Ile Thr Ser Glu Glu Glu Ser Asn Leu Ser Asn Asp			
	1535	1540	1545
ttt att gat gaa aat ggt ctg ccc atc aac aaa aat gaa aat gtc aat			4947
Phe Ile Asp Glu Asn Gly Leu Pro Ile Asn Lys Asn Glu Asn Val Asn			
	1550	1555	1560

gga gaa tct aaa aga aaa acc gtc atc aca gaa gtc acc acg atg acc Gly Glu Ser Lys Arg Lys Thr Val Ile Thr Glu Val Thr Thr Met Thr 1565 1570 1575	4995
tcc aca gtg gcc aca gaa tca aaa act gtg atc aag gta gaa aaa ggc Ser Thr Val Ala Thr Glu Ser Lys Thr Val Ile Lys Val Glu Lys Gly 1580 1585 1590 1595	5043
gat aag caa act gtg gtt tct tcc aca gaa aat tgt gca aaa tcc act Asp Lys Gln Thr Val Val Ser Ser Thr Glu Asn Cys Ala Lys Ser Thr 1600 1605 1610	5091
gtc aca acc acc act aca aca gtg acc aag ctt tcc aca ccc tcc aca Val Thr Thr Thr Thr Thr Thr Val Thr Lys Leu Ser Thr Pro Ser Thr 1615 1620 1625	5139
ggc ggc agt gtg gac atc atc tct gta aag gag cag agc aaa acc gtg Gly Gly Ser Val Asp Ile Ile Ser Val Lys Glu Gln Ser Lys Thr Val 1630 1635 1640	5187
gtc acc acg aca gtg aca gac tcc ctg acc acc acg gga ggc aca ctg Val Thr Thr Thr Val Thr Asp Ser Leu Thr Thr Thr Gly Gly Thr Leu 1645 1650 1655	5235
gtt aca tct atg act gtg agc aaa gag tat tcc aca cga gac aaa gtg Val Thr Ser Met Thr Val Ser Lys Glu Tyr Ser Thr Arg Asp Lys Val 1660 1665 1670 1675	5283
aaa ctg atg aaa ttt tca aga cca aag aag act cgt tca ggt aca gct Lys Leu Met Lys Phe Ser Arg Pro Lys Lys Thr Arg Ser Gly Thr Ala 1680 1685 1690	5331
ctg cca tcc tat aga aaa ttt gtt acc aag agc acc aag aag agc att Leu Pro Ser Tyr Arg Lys Phe Val Thr Lys Ser Thr Lys Lys Ser Ile 1695 1700 1705	5379
ttt gtt ttg cct aat gat gac tta aaa aag ttg gcc cga aaa gga gga Phe Val Leu Pro Asn Asp Asp Leu Lys Lys Leu Ala Arg Lys Gly Gly 1710 1715 1720	5427
atc cga gag gtc cct tat ttt aat tac aat gca aaa cct gct ttg gat Ile Arg Glu Val Pro Tyr Phe Asn Tyr Asn Ala Lys Pro Ala Leu Asp 1725 1730 1735	5475
ata tgg cca tat cct tct cct aga ccg acc ttt ggc atc act tgg agg Ile Trp Pro Tyr Pro Ser Pro Arg Pro Thr Phe Gly Ile Thr Trp Arg 1740 1745 1750 1755	5523
tat aga ctt cag aca gta aag tcc tta gct gga gtg agc ctg atg tta Tyr Arg Leu Gln Thr Val Lys Ser Leu Ala Gly Val Ser Leu Met Leu 1760 1765 1770	5571
cgg tta ctg tgg gca agt ttg aga tgg gat gat atg gcg gcc aag gtt Arg Leu Leu Trp Ala Ser Leu Arg Trp Asp Asp Met Ala Ala Lys Val 1775 1780 1785	5619

cct cca gga gga ggg agt aca cgg aca gaa aca tcc gaa act gaa atc Pro Pro Gly Gly Gly Ser Thr Arg Thr Glu Thr Ser Glu Thr Glu Ile 1790 1795 1800	5667
aca aca aca gaa ata att aag agg aga gat gtt ggt cct tat ggc att Thr Thr Thr Glu Ile Ile Lys Arg Arg Asp Val Gly Pro Tyr Gly Ile 1805 1810 1815	5715
cga ttt gaa tat tgt atc agg aaa atc att tgt ccc att gga gtt cca Arg Phe Glu Tyr Cys Ile Arg Lys Ile Ile Cys Pro Ile Gly Val Pro 1820 1825 1830 1835	5763
gaa aca cca aaa gaa acg cct aca cct cag agg aaa ggc ctt cga tca Glu Thr Pro Lys Glu Thr Pro Thr Pro Gln Arg Lys Gly Leu Arg Ser 1840 1845 1850	5811
agt gca ctg cgg cca aag aga cca gaa acg ccc aag caa act ggc cct Ser Ala Leu Arg Pro Lys Arg Pro Glu Thr Pro Lys Gln Thr Gly Pro 1855 1860 1865	5859
gtt att att gaa acc tgg gta gca gaa gaa gaa ctg gaa ttg tgg gag Val Ile Ile Glu Thr Trp Val Ala Glu Glu Glu Leu Glu Leu Trp Glu 1870 1875 1880	5907
atc agg gca ttt gct gag aga gtg gag aaa gaa aag gca caa gca gtt Ile Arg Ala Phe Ala Glu Arg Val Glu Lys Glu Lys Ala Gln Ala Val 1885 1890 1895	5955
gag caa cag gct aag aaa cga ctg gag cag cag aag ccg aca gtg att Glu Gln Gln Ala Lys Lys Arg Leu Glu Gln Gln Lys Pro Thr Val Ile 1900 1905 1910 1915	6003
gca act tcc act act tcc cca aca agc agt aca acc agc acc atc tct Ala Thr Ser Thr Thr Ser Pro Thr Ser Ser Thr Thr Ser Thr Ile Ser 1920 1925 1930	6051
cca gca cag aaa gtt atg gtg gcc ccc ata agt ggc tca gtt aca act Pro Ala Gln Lys Val Met Val Ala Pro Ile Ser Gly Ser Val Thr Thr 1935 1940 1945	6099
gga acc aaa atg gta cta act act aaa gtt gga tct cca gct aca gta Gly Thr Lys Met Val Leu Thr Thr Lys Val Gly Ser Pro Ala Thr Val 1950 1955 1960	6147
aca ttc caa caa aac aag aac ttt cat caa acc ttt gct aca tgg gtt Thr Phe Gln Gln Asn Lys Asn Phe His Gln Thr Phe Ala Thr Trp Val 1965 1970 1975	6195
aag caa ggc cag tca aat tca ggc gtt gtt caa gta cag cag aaa gtc Lys Gln Gly Gln Ser Asn Ser Gly Val Val Gln Val Gln Gln Lys Val 1980 1985 1990 1995	6243
ctg ggt atc att cca tca agt aca ggt acc agt cag caa acc ttt act Leu Gly Ile Ile Pro Ser Ser Thr Gly Thr Ser Gln Gln Thr Phe Thr 2000 2005 2010	6291
tca ttc cag ccc agg aca gca aca gtc aca att agg ccc aat acc tca	6339

Ser Phe Gln Pro Arg Thr Ala Thr Val Thr Ile Arg Pro Asn Thr Ser	
2015 2020 2025	
ggc tct gga gga acc aca agc aat tca caa gta atc aca ggg cct cag	6387
Gly Ser Gly Gly Thr Thr Ser Asn Ser Gln Val Ile Thr Gly Pro Gln	
2030 2035 2040	
att cgc cct ggt atg acc gtg att aga aca cca ctc caa cag tca aca	6435
Ile Arg Pro Gly Met Thr Val Ile Arg Thr Pro Leu Gln Gln Ser Thr	
2045 2050 2055	
cta gga aag gca att att cga aca cct gtg atg gta cag cca ggt gct	6483
Leu Gly Lys Ala Ile Ile Arg Thr Pro Val Met Val Gln Pro Gly Ala	
2060 2065 2070 2075	
cct cag caa gtg atg act caa atc atc agg ggg cag cct gtc tcc act	6531
Pro Gln Gln Val Met Thr Gln Ile Ile Arg Gly Gln Pro Val Ser Thr	
2080 2085 2090	
gca gtc tcc gcc cct aac acg gtt tcc tca aca cct ggg cag aaa agc	6579
Ala Val Ser Ala Pro Asn Thr Val Ser Ser Thr Pro Gly Gln Lys Ser	
2095 2100 2105	
tta act tca gca acg tcc act tca aat ata cag tct tca gcc tca caa	6627
Leu Thr Ser Ala Thr Ser Thr Ser Asn Ile Gln Ser Ser Ala Ser Gln	
2110 2115 2120	
ccc cct cgc ccc caa caa gga caa gtg aag ctc acc atg gct caa ctt	6675
Pro Pro Arg Pro Gln Gln Gly Gln Val Lys Leu Thr Met Ala Gln Leu	
2125 2130 2135	
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Asp Cys Val Ala Glu Ile Gln Lys Asn Lys Pro Tyr Ile Arg His Glu

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305					310					315				320
Pro	Ile	Gly	Tyr	Asp	Arg	Ser	Arg	Arg	Lys	Tyr	Trp	Phe	Leu	Asn Arg
				325					330					335
Arg	Leu	Ile	Ile	Glu	Glu	Asp	Thr	Glu	Asn	Glu	Asn	Glu	Lys	Lys Ile
			340					345					350	
Trp	Tyr	Tyr	Ser	Thr	Lys	Val	Gln	Leu	Ala	Glu	Leu	Ile	Asp	Cys Leu
		355					360					365		
Asp	Lys	Asp	Tyr	Trp	Glu	Ala	Glu	Leu	Cys	Lys	Ile	Leu	Glu	Glu Met
	370					375					380			
Arg	Glu	Glu	Ile	His	Arg	His	Met	Asp	Ile	Thr	Glu	Asp	Leu	Thr Asn
385					390					395				400
Lys	Ala	Arg	Gly	Ser	Asn	Lys	Ser	Phe	Leu	Ala	Ala	Ala	Asn	Glu Glu
				405					410					415
Ile	Leu	Glu	Ser	Ile	Arg	Ala	Lys	Lys	Gly	Asp	Ile	Asp	Asn	Val Lys
			420						425				430	
Ser	Pro	Glu	Glu	Thr	Glu	Lys	Asp	Lys	Asn	Glu	Thr	Glu	Asn	Asp Ser
		435					440					445		
Lys	Asp	Ala	Glu	Lys	Asn	Arg	Glu	Glu	Phe	Glu	Asp	Gln	Ser	Leu Glu
	450					455					460			
Lys	Asp	Ser	Asp	Asp	Lys	Thr	Pro	Asp	Asp	Asp	Pro	Glu	Gln	Gly Lys
465					470					475				480
Ser	Glu	Val	Gly	Asp	Phe	Lys	Ser	Glu	Lys	Ser	Asn	Gly	Glu	Leu Ser
				485					490					495
Glu	Ser	Pro	Gly	Ala	Gly	Lys	Gly	Ala	Ser	Gly	Ser	Thr	Arg	Ile Ile
			500					505					510	
Thr	Arg	Leu	Arg	Asn	Pro	Asp	Ser	Lys	Leu	Ser	Gln	Leu	Lys	Ser Gln
		515					520					525		
Gln	Val	Ala	Ala	Ala	Ala	His	Glu	Ala	Asn	Lys	Leu	Phe	Lys	Glu Gly
	530					535					540			
Lys	Glu	Val	Leu	Val	Val	Asn	Ser	Gln	Gly	Glu	Ile	Ser	Arg	Leu Ser
545					550					555				560
Thr	Lys	Lys	Glu	Val	Ile	Met	Lys	Gly	Asn	Ile	Asn	Asn	Tyr	Phe Lys
				565					570					575
Leu	Gly	Gln	Glu	Gly	Lys	Tyr	Arg	Val	Tyr	His	Asn	Gln	Tyr	Ser Thr
			580					585					590	
Asn	Ser	Phe	Ala	Leu	Asn	Lys	His	Gln	His	Arg	Glu	Asp	His	Asp Lys
	595						600					605		
Arg	Arg	His	Leu	Ala	His	Lys	Phe	Cys	Leu	Thr	Pro	Ala	Gly	Glu Phe
	610					615						620		
Lys	Trp	Asn	Gly	Ser	Val	His	Gly	Ser	Lys	Val	Leu	Thr	Ile	Ser Thr
625					630					635				640
Leu	Arg	Leu	Thr	Ile	Thr	Gln	Leu	Glu	Asn	Asn	Ile	Pro	Ser	Ser Phe
				645					650					655
Leu	His	Pro	Asn	Trp	Ala	Ser	His	Arg	Ala	Asn	Trp	Ile	Lys	Ala Val
			660					665					670	
Gln	Met	Cys	Ser	Lys	Pro	Arg	Glu	Phe	Ala	Leu	Ala	Leu	Ala	Ile Leu
		675					680					685		
Glu	Cys	Ala	Val	Lys	Pro	Val	Val	Met	Leu	Pro	Ile	Trp	Arg	Glu Phe
	690					695					700			
Leu	Gly	His	Thr	Arg	Leu	His	Arg	Met	Thr	Ser	Ile	Glu	Arg	Glu Glu
705					710					715				720
Lys	Glu	Lys	Val	Lys	Lys	Lys	Glu	Lys	Lys	Gln	Glu	Glu	Glu	Glu Thr
				725					730					735
Met	Gln	Gln	Ala	Thr	Trp	Val	Lys	Tyr	Thr	Phe	Pro	Val	Lys	His Gln
			740					745					750	
Val	Trp	Lys	Gln	Lys	Gly	Glu	Glu	Tyr	Arg	Val	Thr	Gly	Tyr	Gly Gly
		755					760					765		

Trp	Ser	Trp	Ile	Ser	Lys	Thr	His	Val	Tyr	Arg	Phe	Val	Pro	Lys	Leu
770						775					780				
Pro	Gly	Asn	Thr	Asn	Val	Asn	Tyr	Arg	Lys	Ser	Leu	Glu	Gly	Thr	Lys
785					790					795					800
Asn	Asn	Met	Asp	Glu	Asn	Met	Asp	Glu	Ser	Asp	Lys	Arg	Lys	Cys	Ser
				805					810					815	
Arg	Ser	Pro	Lys	Lys	Ile	Lys	Ile	Glu	Pro	Asp	Ser	Glu	Lys	Asp	Glu
			820					825					830		
Val	Lys	Gly	Ser	Asp	Ala	Ala	Lys	Gly	Ala	Asp	Gln	Asn	Glu	Met	Asp
		835					840					845			
Ile	Ser	Lys	Ile	Thr	Glu	Lys	Lys	Asp	Gln	Asp	Val	Lys	Glu	Leu	Leu
	850					855					860				
Asp	Ser	Asp	Ser	Asp	Lys	Pro	Cys	Lys	Glu	Glu	Pro	Met	Glu	Val	Asp
865					870					875					880
Asp	Asp	Met	Lys	Thr	Glu	Ser	His	Val	Asn	Cys	Gln	Glu	Ser	Ser	Gln
				885					890					895	
Val	Asp	Val	Val	Asn	Val	Ser	Glu	Gly	Phe	His	Leu	Arg	Thr	Ser	Tyr
			900					905					910		
Lys	Lys	Lys	Thr	Lys	Ser	Ser	Lys	Leu	Asp	Gly	Leu	Leu	Glu	Arg	Arg
		915					920					925			
Ile	Lys	Gln	Phe	Thr	Leu	Glu	Lys	Gln	Arg	Leu	Glu	Lys	Ile	Lys	
	930					935				940					
Leu	Glu	Gly	Gly	Ile	Lys	Gly	Ile	Gly	Lys	Thr	Ser	Thr	Asn	Ser	Ser
945					950					955					960
Lys	Asn	Leu	Ser	Glu	Ser	Pro	Val	Ile	Thr	Lys	Ala	Lys	Glu	Gly	Cys
				965					970					975	
Gln	Ser	Asp	Ser	Met	Arg	Gln	Glu	Gln	Ser	Pro	Asn	Ala	Asn	Asn	Asp
			980					985					990		
Gln	Pro	Glu	Asp	Leu	Ile	Gln	Gly	Cys	Ser	Gln	Ser	Asp	Ser	Ser	Val
		995				1000						1005			
Leu	Arg	Met	Ser	Asp	Pro	Ser	His	Thr	Thr	Asn	Lys	Leu	Tyr	Pro	Lys
	1010					1015					1020				
Asp	Arg	Val	Leu	Asp	Asp	Val	Ser	Ile	Arg	Ser	Pro	Glu	Thr	Lys	Cys
1025					1030					1035					1040
Pro	Lys	Gln	Asn	Ser	Ile	Glu	Asn	Asp	Ile	Glu	Glu	Lys	Val	Ser	Asp
				1045					1050					1055	
Leu	Ala	Ser	Arg	Gly	Gln	Glu	Pro	Thr	Lys	Ser	Lys	Thr	Lys	Gly	Asn
			1060					1065					1070		
Asp	Phe	Phe	Ile	Asp	Asp	Ser	Lys	Leu	Ala	Ser	Ala	Asp	Asp	Ile	Gly
	1075						1080					1085			
Thr	Leu	Ile	Cys	Lys	Asn	Lys	Lys	Pro	Leu	Ile	Gln	Glu	Glu	Ser	Asp
	1090					1095					1100				
Thr	Ile	Val	Ser	Ser	Ser	Lys	Ser	Ala	Leu	His	Ser	Ser	Val	Pro	Lys
1105					1110					1115					1120
Ser	Thr	Asn	Asp	Arg	Asp	Ala	Thr	Pro	Leu	Ser	Arg	Ala	Met	Asp	Phe
				1125					1130					1135	
Glu	Gly	Lys	Leu	Gly	Cys	Asp	Ser	Glu	Ser	Asn	Ser	Thr	Leu	Glu	Asn
			1140					1145					1150		
Ser	Ser	Asp	Thr	Val	Ser	Ile	Gln	Asp	Ser	Ser	Glu	Glu	Asp	Met	Ile
		1155					1160					1165			
Val	Gln	Asn	Ser	Asn	Glu	Ser	Ile	Ser	Glu	Gln	Phe	Arg	Thr	Arg	Glu
	1170					1175					1180				
Gln	Asp	Val	Glu	Val	Leu	Glu	Pro	Leu	Lys	Cys	Glu	Leu	Val	Ser	Gly
1185					1190					1195					1200
Glu	Ser	Thr	Gly	Asn	Cys	Glu	Asp	Arg	Leu	Pro	Val	Lys	Gly	Thr	Glu
				1205					1210					1215	
Ala	Asn	Gly	Lys	Lys	Pro	Ser	Gln	Gln	Lys	Lys	Leu	Glu	Glu	Arg	Pro

Glu Ile Ile Lys Arg Arg Asp Val Gly Pro Tyr Gly Ile Arg Phe Glu
 1685 1690 1695
 Tyr Cys Ile Arg Lys Ile Ile Cys Pro Ile Gly Val Pro Glu Thr Pro
 1700 1705 1710
 Lys Glu Thr Pro Thr Pro Gln Arg Lys Gly Leu Arg Ser Ser Ala Leu
 1715 1720 1725
 Arg Pro Lys Arg Pro Glu Thr Pro Lys Gln Thr Gly Pro Val Ile Ile
 1730 1735 1740
 Glu Thr Trp Val Ala Glu Glu Glu Leu Glu Leu Trp Glu Ile Arg Ala
 1745 1750 1755 1760
 Phe Ala Glu Arg Val Glu Lys Glu Lys Ala Gln Ala Val Glu Gln Gln
 1765 1770 1775
 Ala Lys Lys Arg Leu Glu Gln Gln Lys Pro Thr Val Ile Ala Thr Ser
 1780 1785 1790
 Thr Thr Ser Pro Thr Ser Ser Thr Thr Ser Thr Ile Ser Pro Ala Gln
 1795 1800 1805
 Lys Val Met Val Ala Pro Ile Ser Gly Ser Val Thr Thr Gly Thr Lys
 1810 1815 1820
 Met Val Leu Thr Thr Lys Val Gly Ser Pro Ala Thr Val Thr Phe Gln
 1825 1830 1835 1840
 Gln Asn Lys Asn Phe His Gln Thr Phe Ala Thr Trp Val Lys Gln Gly
 1845 1850 1855
 Gln Ser Asn Ser Gly Val Val Gln Val Gln Gln Lys Val Leu Gly Ile
 1860 1865 1870
 Ile Pro Ser Ser Thr Gly Thr Ser Gln Gln Thr Phe Thr Ser Phe Gln
 1875 1880 1885
 Pro Arg Thr Ala Thr Val Thr Ile Arg Pro Asn Thr Ser Gly Ser Gly
 1890 1895 1900
 Gly Thr Thr Ser Asn Ser Gln Val Ile Thr Gly Pro Gln Ile Arg Pro
 1905 1910 1915 1920
 Gly Met Thr Val Ile Arg Thr Pro Leu Gln Gln Ser Thr Leu Gly Lys
 1925 1930 1935
 Ala Ile Ile Arg Thr Pro Val Met Val Gln Pro Gly Ala Pro Gln Gln
 1940 1945 1950
 Val Met Thr Gln Ile Ile Arg Gly Gln Pro Val Ser Thr Ala Val Ser
 1955 1960 1965
 Ala Pro Asn Thr Val Ser Ser Thr Pro Gly Gln Lys Ser Leu Thr Ser
 1970 1975 1980
 Ala Thr Ser Thr Ser Asn Ile Gln Ser Ser Ala Ser Gln Pro Pro Arg
 1985 1990 1995 2000
 Pro Gln Gln Gly Gln Val Lys Leu Thr Met Ala Gln Leu Thr Gln Leu
 2005 2010 2015
 Thr Gln Gly His Gly Gly Asn Gln Gly Leu Thr Val Val Ile Gln Gly
 2020 2025 2030
 Gln Gly Gln Thr Thr Gly Gln Leu Gln Leu Ile Pro Gln Gly Val Thr
 2035 2040 2045
 Val Leu Pro Gly Pro Gly Gln Gln Leu Met Gln Ala Ala Met Pro Asn
 2050 2055 2060
 Gly Thr Val Gln Arg Phe Leu Phe Thr Pro Leu Ala Thr Thr Ala Thr
 2065 2070 2075 2080
 Thr Ala Ser Thr Thr Thr Thr Thr Val Ser Thr Thr Ala Ala Gly Thr
 2085 2090 2095
 Gly Glu Gln Arg Gln Ser Lys Leu Ser Pro Gln Met Gln Val His Gln
 2100 2105 2110
 Asp Lys Thr Leu Pro Pro Ala Gln Ser Ser Ser Val Gly Pro Ala Lys
 2115 2120 2125
 Ala Gln Pro Gln Thr Ala Gln Pro Ser Ala Arg Pro Gln Pro Gln Thr

2130	2135	2140
Gln Pro Gln Ser Pro Ala Gln Pro Glu Val Gln Thr Gln Pro Glu Val		
2145	2150	2155
Gln Thr Gln Thr Thr Val Ser Ser His Val Pro Ser Glu Ala Gln Pro		2160
2165	2170	2175
Thr His Ala Gln Ser Ser Lys Pro Gln Val Ala Ala Gln Ser Gln Pro		
2180	2185	2190
Gln Ser Asn Val Gln Gly Gln Ser Pro Val Arg Val Gln Ser Pro Ser		
2195	2200	2205
Gln Thr Arg Ile Arg Pro Ser Thr Pro Ser Gln Leu Ser Pro Gly Gln		
2210	2215	2220
Gln Ser Gln Val Gln Thr Thr Ser Gln Pro Ile Pro Ile Gln Pro		
2225	2230	2235
His Thr Ser Leu Gln Ile Pro Ser Gln Gly Gln Pro Gln Ser Gln Pro		2240
2245	2250	2255
Gln Val Gln Ser Ser Thr Gln Thr Leu Ser Ser Gly Gln Thr Leu Asn		
2260	2265	2270
Gln Val Ser Val Ser Ser Pro Ser Arg Pro Gln Leu Gln Ile Gln Gln		
2275	2280	2285
Pro Gln Pro Gln Val Ile Ala Val Pro Gln Leu Gln Gln Val Gln		
2290	2295	2300
Val Leu Ser Gln Ile Gln Ser Gln Val Val Ala Gln Ile Gln Ala Gln		
2305	2310	2315
Gln Ser Gly Val Pro Gln Gln Ile Lys Leu Gln Leu Pro Ile Gln Ile		2320
2325	2330	2335
Gln Gln Ser Ser Ala Val Gln Thr His Gln Ile Gln Asn Val Val Thr		
2340	2345	2350
Val Gln Ala Ala Ser Val Gln Glu Gln Leu Gln Arg Val Gln Gln Leu		
2355	2360	2365
Arg Asp Gln Gln Gln Lys Lys Lys Gln Gln Gln Ile Glu Ile Lys Arg		
2370	2375	2380
Glu His Thr Leu Gln Ala Ser Asn Gln Ser Glu Ile Ile Gln Lys Gln		
2385	2390	2395
Val Val Met Lys His Asn Ala Val Ile Glu His Leu Lys Gln Lys Lys		2400
2405	2410	2415
Ser Met Thr Pro Ala Glu Arg Glu Glu Asn Gln Arg Met Ile Val Cys		
2420	2425	2430
Asn Gln Val Met Lys Tyr Ile Leu Asp Lys Ile Asp Lys Glu Glu Lys		
2435	2440	2445
Gln Ala Ala Lys Lys Arg Lys Arg Glu Glu Ser Val Glu Gln Lys Arg		
2450	2455	2460
Ser Lys Gln Asn Ala Thr Lys Leu Ser Ala Leu Leu Phe Lys His Lys		
2465	2470	2475
Glu Gln Leu Arg Ala Glu Ile Leu Lys Lys Arg Ala Leu Leu Asp Lys		2480
2485	2490	2495
Asp Leu Gln Ile Glu Val Gln Glu Glu Leu Lys Arg Asp Leu Lys Ile		
2500	2505	2510
Lys Lys Glu Lys Asp Leu Met Gln Leu Ala Gln Ala Thr Ala Val Ala		
2515	2520	2525
Ala Pro Cys Pro Pro Val Thr Pro Val Leu Pro Ala Pro Pro Ala Pro		
2530	2535	2540
Pro Pro Ser Pro Pro Pro Pro Pro Gly Val Gln His Thr Gly Leu Leu		
2545	2550	2555
Ser Thr Pro Thr Leu Pro Val Ala Ser Gln Lys Arg Lys Arg Glu Glu		2560
2565	2570	2575
Glu Lys Asp Ser Ser Ser Lys Ser Lys Lys Lys Lys Met Ile Ser Thr		
2580	2585	2590

Thr Ser Lys Glu Thr Lys Lys Asp Thr Lys Leu Tyr Cys Ile Cys Lys
 2595 2600 2605
 Thr Pro Tyr Asp Glu Ser Lys Phe Tyr Ile Gly Cys Asp Arg Cys Gln
 2610 2615 2620
 Asn Trp Tyr His Gly Arg Cys Val Gly Ile Leu Gln Ser Glu Ala Glu
 2625 2630 2635 2640
 Leu Ile Asp Glu Tyr Val Cys Pro Gln Cys Gln Ser Thr Glu Asp Ala
 2645 2650 2655
 Met Thr Val Leu Thr Pro Leu Thr Glu Lys Asp Tyr Glu Gly Leu Lys
 2660 2665 2670
 Arg Val Leu Arg Ser Leu Gln Ala His Lys Met Ala Trp Pro Phe Leu
 2675 2680 2685
 Glu Pro Val Asp Pro Asn Asp Ala Pro Asp Tyr Tyr Gly Val Ile Lys
 2690 2695 2700
 Glu Pro Met Asp Leu Ala Thr Met Glu Glu Arg Val Gln Arg Arg Tyr
 2705 2710 2715 2720
 Tyr Glu Lys Leu Thr Glu Phe Val Ala Asp Met Thr Lys Ile Phe Asp
 2725 2730 2735
 Asn Cys Arg Tyr Tyr Asn Pro Ser Asp Ser Pro Phe Tyr Gln Cys Ala
 2740 2745 2750
 Glu Val Leu Glu Ser Phe Phe Val Gln Lys Leu Lys Gly Phe Lys Ala
 2755 2760 2765
 Ser Arg Ser His Asn Asn Lys Leu Gln Ser Thr Ala Ser
 2770 2775 2780